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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,324	06/27/2001	Osamu Samuel Nakagawa	10004808-1	3635

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

SCHILLINGER, LAURA M

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,324

Applicant(s)

NAKAGAWA, OSAMU SAMUEL

Examiner

Laura M. Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 7-12 rejected under 35 U.S.C. 102(b) as being anticipated by Uchida ('858).

In reference to claim 1, Uchida teaches a method comprising:

Forming a first electrode (32) in a first dielectric layer (34) of the multi-level metallization device (Fig.5)

Depositing a substantially thin dielectric material layer (34) over the first dielectric layer (34) of the multi-level metallization device (herein after referred to as "MLM") (100) (Fig.5); and

Forming a second electrode (55) in a second dielectric layer (40), wherein the second dielectric layer (40) is formed substantially over the substantially thin dielectric layer (34) (Fig.5).

In reference to claim 2, Uchida teaches further comprising:

Patterning the substantially thin dielectric material to substantially cover the first electrode (Col.8, lines: 45-50); and

Adjusting the thickness of the thin dielectric material layer (Col.8, lines: 45-50).

In reference to claim 3, Uchida teaches wherein a dielectric constant of the substantially thin dielectric layer is substantially high (Col.8, lines: 40-45)).

In reference to claim 4, Uchida teaches wherein the substantially thin dielectric layer includes SiN (Col.8-9, lines: 65-5)

In reference to claim 7, Uchida teaches further comprising:

Depositing a second dielectric layer over the substantially thin dielectric layer (Fig.5 (40); and

Etching at least one via adaptive to receive the second electrode (See Fig.5 (55)).

In reference to claim 8, Uchida teaches further comprising:

Polishing the second metal layer (Col.9, lines: 45-50)).

In reference to claim 9, Uchida teaches wherein etching the first electrode in a first dielectric layer of the MLM (Fig.5 (32)).

In reference to claim 10, Uchida teaches wherein the first electrode is formed in a parallel line configuration (Fig.5 (32)

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In reference to claim 11, Uchida teaches wherein the second electrode is formed in a parallel line configuration (Fig.5 (55)).

In reference to claim 12, Uchida teaches wherein the dielectric is a composite (Col.8-9, lines: 65-5).

In reference to claim 13, Uchida teaches wherein the composite comprises PZT and platinum (Col.8, lines: 60-68).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida ('858).

In reference to claim 5, Uchida fails to explicitly teach wherein the thickness of the dielectric layer is between 50 to 100 Å- however does teach that the dielectric is thin (Col.14, lines: 45-50). This claim is prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685, 1688(Fed. Cir. 1996)(claimed ranges of a result effective variable, which do not overlap

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the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also In re Boesch, 205 USPQ 215 (CCPA 1985) (discovery of optimum value of result effective variable in known process is ordinarily within skill of art) and In re Aller, 105 USPQ 233 (CCPA 1955) (selection of optimum ranges within prior art general conditions is obvious).

In reference to claim 6, Uchida fails to explicitly teach wherein the dielectric constant is between 4 and 100, however does teach that the dielectric constant for layer 34 is high (Col.8, lines: 40-45). This claim is prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685, 1688(Fed. Cir. 1996)(claimed ranges of a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also In re Boesch, 205 USPQ 215 (CCPA 1985) (discovery of optimum value of result effective variable in known process is ordinarily within skill of art) and In re Aller, 105 USPQ 233 (CCPA 1955) (selection of optimum ranges within prior art general conditions is obvious).

Response to Arguments

Applicant's arguments filed 11/24/04 have been fully considered but they are not persuasive. Applicant argues that the electrode is not formed in a dielectric layer as

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claimed by the Applicant. However, such an argument is not persuasive because element 34 could be divided into two layers the lower layer has a dielectric layer formed in it. The upper portion of element 34 meets the requirements of Applicant's claim language in that it lies over the lower portion of 34. Therefore Uchida anticipates Applicant's claim language.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached on M-T, R-F 7:00-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (703) 308-4940. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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02/28/05